THE FOOT
AND ITS
COVERING

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THE FOOT
AND ITS COVERING

A
PRACTICAL TREATISE
UPON
THE NATURAL CARE OF THE FEET AND
THEIR TREATMENT IN DEFORMITY.

BY

JAMES POND

(Bootmaker, Norwich.)

LONDON:

Published by the Leather Trades Publishers,
9 & 10 St. Bride's Avenue, Fleet-st., E.C.

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The Foot and its Covering.

INTRODUCTION.

In offering the following pages to my many friends and the public, it is with a certain amount of diffidence, not of its importance, but of my ability. I am led to the effort because there is a want of knowledge in making boots and shoes in conformity with the shape of the feet, and an indifference of many people as to the shape of their boots, providing they are fashionable. On the other hand there are many parents and nurses who are anxious to know the kind of boot which is the best for their children, and if the feet or legs are in any way deformed, what is the best remedy. My object is to point out the simplest means to keep the foot in health, and to remedy any defects.

My work is rendered the more easy because of the great change in the shape of boots and shoes during the last fifty years. In this respect a great improvement has taken place. The difficulty comes when the person buys a pair of ready-made boots; very often the shop assistant knows nothing of how to make a boot, nor of the anatomy and peculiarities of the human foot. I think, therefore, both the shop assistant and the customer require more information than they generally possess about the shape of the feet they have to fit. It is useless to oppose fashion, but it is advantageous to be able to choose which is most suitable from the selection placed before you. I can remember the time when all boots were made to measure, the shoemaker being assisted by his wife, who made the uppers. The bootmaker attended more to corns and bunions, and thought little about the natural shape of the foot. He had but one or two sets of lasts of various lengths, and upon these the boots were made; no matter whether the feet were broad, narrow, straight, or crooked, or good or bad in shape, they had to fit the boot if the boot did not fit the feet.

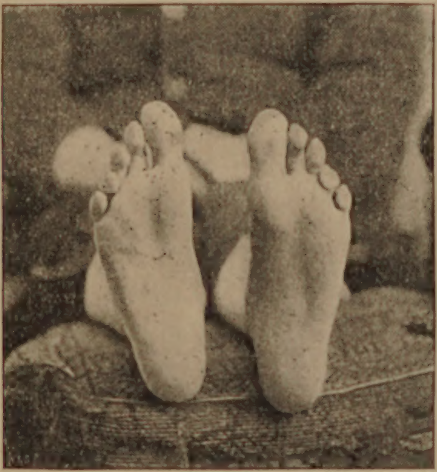
Many people are anxious to preserve healthy feet and retain their natural shape; and shoemakers are anxious to oblige their customers with suitable boots, and, in caseof malformation, to give them as much ease as possible. I is to such as these I hope my information may prove useful. I do not wish to take the place of a doctor, but merely wish to advise the shoemaker what kind of boot is the best for malformations. With the attention of the last-maker, shoemaker, and doctor, boots and shoes will still further be improved until they become a good and useful covering for the foot. To my mind there is no subject of greater importance to those who derive their livelihood from the manufacture or the sale of boots and shoes than the question of the proper adaptation of shoes to the feet; and as my practical experience of this particular subject extends over a period of nearly forty years, my remarks may doubtless be found to be of some value to the readers on this subject. Critics I am sure to have, but I would ask those who peruse these pages to remember that between theory and practice there is a wide gulf, which practical experience alone can bridge over, and thus combine what is good in supposition and in fact.

It is thirty-five years since my attention was first drawn to this subject by Dr. Meyer, and since that time I have given my closest attention to the problem of the proper adaptation of boots and shoes to the human foot. My task has been anything but an easy one, as the importance when fully considered will demonstrate. Judging from the many cases of bad feet brought to me, I find deformity caused not only by badly-shaped boots, but by the very careless way the average man or woman cares for his or her feet. I believe there are almost as many cases of flat foot, corns, and bunions brought about by the style of gait as by improper boots, and that most cases of flat foot might be prevented or cured by careful walking.

THE STRUCTURE OF THE FOOT.

The foot is a wonderful member of the body, second only to the hand. That such a small portion of the body should have to support the great weight it often does seems incredible. Take the case of a man, probably weighing some 160 lbs. himself, carrying enormous weights, such as a sack of flour on his shoulders, not merely to hold while standing still, but to walk, and sometimes to climb, and see how the whole weight presses not on both feet, but from one to the other, and from the whole foot to the forepart, and then all on to the toes, not directly under the body, but slightly in front or behind; and think then whether this is not a subject demanding more consideration than it usually receives, the flexibility enabling us to turn, twist, run, jump, vault, climb, or dance, and steady the great weight from above it concussion, by the flexibility of the toes and the elasticity of the waist and heel, if not impeded by the stiffness or bad shape of the covering preventing the grasp and spread it requires. There is nothing in mechanics to equal the foot either for strength, flexibility, or peculiarity of movement; and the knowledge that this is but one member of the body, ought to raise the mind to the unseen Power that guides and controls us all. Yet ignorance of Nature, and fashion's desire for change of style, brings many distortions and diseases to this wonderful work; cramping, crippling, and destroying its uses long before the meridian of life is reached.

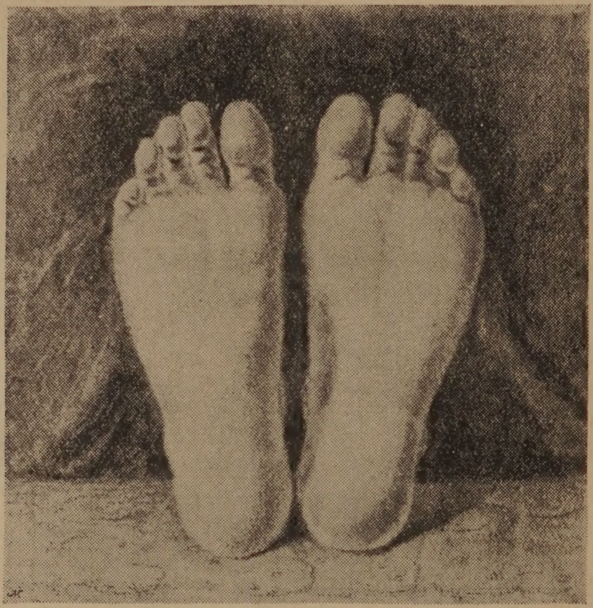
Of the many hundreds of feet I have seen, I can remember but one perfect foot, and the owner is able to write his own name with it. To preserve children's feet be careful never to have shoes that are called "Straights;" they are made to fit both feet, and will fit neither. Some people may consider them good from an economical point of view, but if we just consider the illustrations here shown, how the straight shoe will force the larger toe into the space recently occupied by the small toe, there ought then to be no surprise that distortion follows. I have no doubt these distortions would be more severe were it not for the child passing so much time in sleeping or resting, thus giving the toes time to re cover somewhat their natural shape. By having boots or shoes made on anatomical principles, that is, the natural shape of the foot, these distortions might often be avoided. The shape of an anatomical shoe should be straight from heel to toe inside, rounding from the waist to toe outside, and what many people think too wide and too long, that the growth of the foot may not be impeded, and the shape of the foot will



No. 1—The Narrow Type.

be quite natural. There are almost as many shapes of the foot as there are feet, but for convenience I think they may be divided into three classes.

The narrow type (No. 1) has the great toe the longest, the others tapering in their order to the fifth or little toe. The possessor of this kind of foot can wear a boot with a narrow toe; but as this shape is extremely uncommon, there will be ninety-nine victims to fashion out of every hundred wearers.

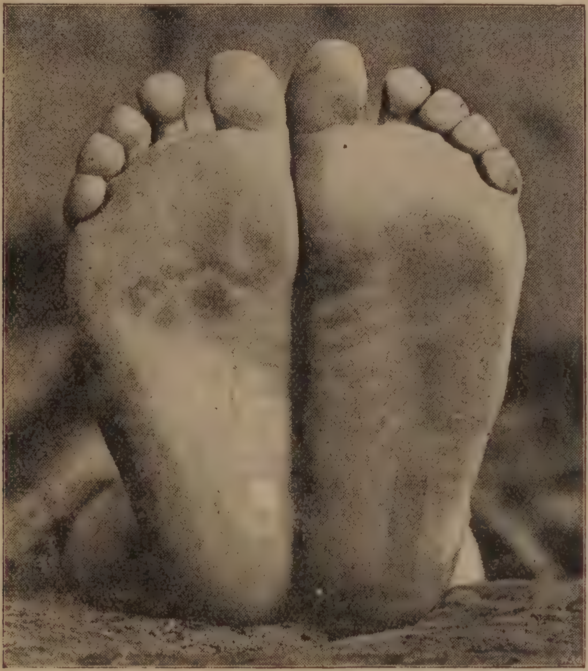


No. 2—The Medium, or Grecian Type.

The medium, or Grecian type (No. 2), is depicted in ancient sculpture, and is the shape most rarely met with. The two middle toes are the longest, the large toe next, and the fourth and fifth still shorter.

The broad type is most generally met with (No. 3), and is in the proportion of about 85 per cent.; the large and two middle toes are of nearly equal length, with the fourth and fifth shorter and shorter.

It is a popular opinion that a boot must have a broad ball or tread to be easy, and that this is all that is necessary. A boot must not only be as broad as the foot at the tread, but also across the broadest part of the toes; then, as a compromise to fashion, it may be made narrower at the end of the toes; but on no account should a pointed toe be made for comfort, as a healthy foot is quite straight along the inside from the heel, just above the hollow or waist, to the large toe end. A straight-edge placed along the inside of an infant's foot will demonstrate this. Other shapes of feet need differently-shaped boots. I do not profess having included every type in the foregoing three classes, for many deformities are caused by badly-constructed boots, bad walking, and are also inherited.

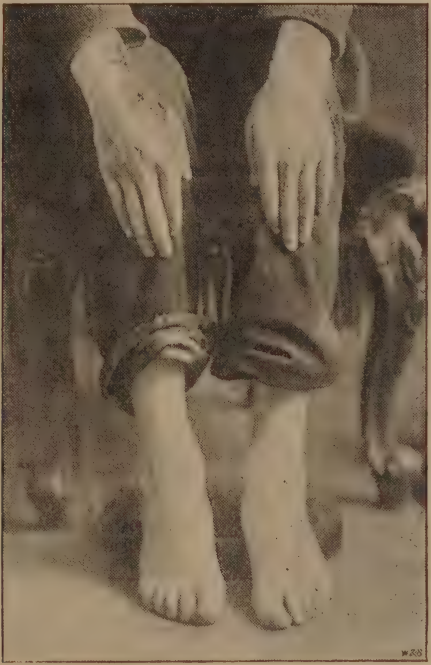


No. 3—The Broad Type.

THE AFFINITY BETWEEN HANDS AND FEET.

To illustrate my point more clearly I should like to call attention to the affinity between the hands and feet. Thin hands, thin feet (*a*, man's hands and feet) ; thick hands, thick feet ; broad square hands, the same in feet ; the scraggy hand, with thick joints at the bottoms of the thumb and fingers (*b*, hands and feet often denotes that the person has bunions on large toes and corns on the small ones. These remarks of a likeness allow for the difference between the hand and foot ; but all who notice these facts will see their force more strikingly illustrated in cases of chronic rheumatism and gout. (*c*, distorted hands and feet).

I mention these facts, never having seen them remarked upon in any work before, not so much to defend bootmakers, but to show that badly-shaped boots are not the cause of all distorted feet; for by these examples, if badly-shaped boots cause badly-shaped feet, what caused badly-shaped hands? Not gloves, for these cases often occur where gloves are seldom or never worn. By my own experience I can generally tell the shape of the foot by the shape of the hand, and in the same families you often see the shape of the parents' feet reflected in the feet of the children. I am not sufficiently satisfied that "hammer-toe" is hereditary, although I have known two brothers with two sons each having a "hammer-toe" on the same foot—a contracted middle toe—and the same toe in each case. Personally, I consider it is generally caused by persons buying boots to fit one foot. In many cases there is a sixth of an inch difference between the two feet, and in some cases they vary half an inch, the longest foot usually being the thinnest. If a buyer has his boots the length of the short foot, the other foot will have its middle toe forced back, and being pressed on either side it becomes gradually contracted, until he has a "hammer-toe" with all its discomforts. I should never advise any person to have such a toe amputated, but by having it cut and splintered by a surgeon, and boots properly made to fit, the pain may be considerably alleviated. In cases where the toe has been cut off, the large toe has pressed outward towards the other toes and formed a bunion. It appears to be the fixed opinion of many people that the foot is too large and too long, and altogether the wrong shape, forgetting the fact that others, who have not cramped their feet, are able to enjoy the many uses for which their feet were provided, and do not tire so soon as the first-mentioned community. For any boot to be easy two things are essential. First, the boot must be long and large enough; secondly, the boot must be the proper shape of the foot which is to wear it. In the second condition, I think the shoemakers are often blamed too severely, for the proper shape is easily enough obtained, but the difficulty is to get people to admit the true shape of their feet. The objection is always, that the shape is not fashionable, and if the boots have the usual allowance for length and ease, then they are thought much too large and too long, and the toes much too broad. People do not know, or will not acknowledge, that the foot expands in walking and standing; thus the attempts of the bootmakers have been mainly directed towards making a fashionable rather than an anatomical boot. Perhaps the most fashionable in present use is the French shape. The straight form, with a square toe, which Dr. H. Meyer so forcibly condemned, is not conformable with the shape of the foot. When this shaped boot is worn, the foot presses the upper over the outside of the sole ; but as the boot is only a certain size, and that smaller than the foot, the latter tries to obtain its natural freedom, and the little toe is the sufferer by being squeezed under the others. The great toe gets pushed obliquely to the centre of the toes, and after a time a swelling of the large toe joint commences, and increases until a bunion is formed.



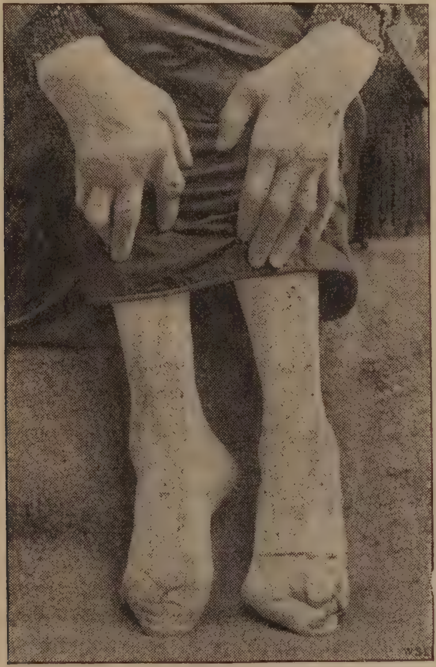
No. 4 – Good Hands and Feet.

Another fault is that of wearing high heels, thus causing one part of the foot to perform the work of all ; for it is impossible to get the proper spring in the foot while in the unnatural position obtained by the use of high heels. A person standing in high-heeled boots is in the same position as if he were continually walking down hill ; the foot and toes are being forced into the smallest part of the boot, and the toes have to do more work in a smaller space than they would do in the natural condition. The boots of truly English fashion are not much better than those of their neighbours ; they are nearly as straight, only they have a little more hollow inside than the French, while the shape of the toes is worse because they are not so wide, and are quite out of proportion to the rest of the boot. In many cases where the boots are worn, if the wearer compares the boot with the foot, he will be surprised how he has accomplished an apparently impossible feat of putting the largest quantity into the smallest space.

Why this is done with such a useful member of the body I cannot understand. Boots to-day are more the shape of a bricklayer's trowel than the human foot. Again, why are ladies' and children's slippers and shoes made straight, and the soles about half the width of the foot? The only reason I ever heard of is, because they were always so, or that such is the shape required to sell. Thus the war of shoes *versus* toes goes on, and the feet are distorted, the uppers pressed over on to the ground, and soon worn through. Gents' shoes are generally made right and left, but then they are nearly straight, a little broader at the ball, but quite as narrow in proportion at the toes, with the same ill effects. Ladies' shoes have softer materials, but I have not found much difference in the amount of distortion between ladies' and gentlemen's feet. I have known several ladies who have had their

No. 5—Scraggy Hands and Feet.

small toes amputated, but I have never heard of any gentleman who has undergone the operation, although it is not at all unusual to be kept at home for a fortnight or three weeks with a ingrowing toe-nail or a bad bunion. I do not think my case is exceptional in having many customers who can tell me the way to make boots, and who really think they know exactly what is required. Their instructions are usually—make them wide at the ball, put a piece on the last for this corn or that, or make them large. Others will persist in having the shape of their feet taken, but they would not take boots made to the shape of their feet, and very rarely do they know their natural shape. I once knew a gentleman who went to Paris and had models taken of his feet, and lasts cast from them. He thought he really had obtained the shape, length, etc., of his feet; but when the shoemaker made his boots, they were, of course, too short, and much too large, and it was impossible to wear them. He did not know that bootmakers have to make an allowance of one inch for the elongation of the foot; the reason that this allowance is necessary is that the weight of the body on the arch of the



No. 6—Chronic Rheumatism of Hands and Feet.

foot causes it to depress when in use, and return to its normal position when at rest. If a drawing of a person's foot be taken while sitting, and again when standing, the difference is at once apparent. I do not think it necessary to take a drawing of every foot measured, but it is certainly useful in a distorted foot, if the shoemaker knows and is willing to apply the true principles on which a sole ought to be constructed, as it gives an exact copy of many minor defects which ought always to be taken into consideration.

It will be well to mention the bad and often slovenly carriage of the feet in walking. It is seldom that children or adults put both feet on the ground alike, one foot is generally turned more outward than the other. Bad walking is often the cause of distortions of the feet and toes. The proper style of walking is undoubtedly strictly straight, carrying the foot and leg steadily forward from the hip joint, and placing the foot very nearly in front of the other foot, allowing the heel to touch the ground first, and springing from the toes. The greatest harm to the feet is caused by turning them outwards while walking. It does more to distort the foot than wearing badly-made boots, as its whole mechanism is at once disarranged. The tibia, or leg bone, which carries the weight of the body, is pressed into the inner side of the arch of the foot; the bones and muscles, being out of position, are thus strained. They would soon recover themselves if the strain were for a short time only, but when it is continued it has all the evil effects that are found in bad feet. It presses the great toe to the outside of the foot by the continued weight of the body pressing on the great toe, and this causes a bunion to form; the great toe being out of its proper place, is forced upon the little toes, and if there is not sufficient room in the boots to allow the little toes proper space, they are pressed closely together, causing corns to form on and between them. Turning the feet outward while walking destroys the elasticity of the foot, and often lays the foundation of flat feet.

I again ask you not to accept these statements without examination. Notice persons suffering from bunions and flat feet, and see if their feet are not turned outward while walking. Many young persons have taken my advice and altered their mode of walking, and thus have prevented bunions. and others have arrested a decided tendency to flat feet, As I have cured many cases of flat feet, I must firmly impress upon all that I know of nothing that will make an effective cure without walking with the feet quite straight. The reason why people adopt the wrong mode of walking, and also allow their children to persist in the habit, I think the dancing-master and drill-instructor are in a great measure responsible, both teaching their pupils to turn the toes outward.

High, heavy-laced boots are injurious to the development of the muscles of the leg. A case came under my notice of a man who had badly scalded the front part of his legs, and so injured the muscles that they ceased to be effective. I asked what he had been doing to support them, and he replied, "I have had high-laced boots made, and put strong steel plates up the backs, and by lacing tightly I got the support." I said, "What about the calves?" He answered, "I lost them soon after wearing my high-laced boots." Children are prone to walk in the same style as their parents; then, if the latter suffer from corns or bunions, and there is a probability of the children suffering in the same manner, steps should at once be taken to remedy the evil by paying strict attention to their mode of walking. I have been very particular in these details about walking and its effects upon the feet, as I have never seen any allusion to the subject, and I am sure it is of the utmost importance in preserving good healthy feet and in improving bad ones.

HIGH HEELS AND THEIR EFFECTS.

Much has been written about high heels to boots—and still more will undoubtedly be written about them—yet they continue to be worn by many people. The chief reason for wearing them is that they are fashionable and stylish. Some people are under the impression that high heels make them look taller. This is decidedly erroneous, as high heels tend to push the knees forward while walking. This may be explained in the following manner:—Suppose a person rests both feet on the ground, then slightly raises the heel, the knee is pushed forward but the height is not increased. This would not be the case if the person stood perfectly straight, then just raised both heels from the ground for a short time; this would certainly make him look taller, but he would not carry his body in that position while walking, as the knees would unconsciously press forward; for in walking down a steep slope the heels become more raised, and again the tendency is to push the knees forward. Other evils arising from high heels are: the waist of the foot is pressed down, the size of the calves of the legs decreased, and the ankle is increased. High heels are generally placed too forward in the boot, causing the arch of the foot to become contracted, and when high heels are placed backwards in the boot they induce flat feet. Of these two evils one can hardly say which is the worst. The arch of the foot being contracted causes an equinus foot. I have, I believe, made more high corked boots for contracted hips than any other maker in the large district in which I live, and having made for many people since their childhood I see the effect of extra high heels on their feet. These heels will range from two and a half to five inches in height, and the high heel causes the foot to appear quite the French style—high arched instep, contracted waist, and straight heel; the other foot of the same person, on which he necessarily wears low-heeled boots, retains its normal shape. The French pride themselves on their high insteps and straight heels, which, of course, are the result of wearing high-heeled boots. It seems amusing that a nation should pride themselves on a deformity. The Chinese carry out these ideas to a much greater extent, and some foolish persons wish to maintain they suffer no inconvenience. High insteps are sometimes looked upon as a mark of high birth, but this certainly is not the case, as I can make a flat foot arched, or a fairly arched foot high arched; therefore it cannot be a mark of high birth.

From my remarks some people may imagine that under some circumstances high heels are favourable, and tend to make a high-arched foot; but it is not so, for I have some customers with these high-arched feet caused by wearing high heels, that I find it really a modification of Talipes Equinus, or contraction of the muscles under the arch of the foot, thus bringing the weight of the body sharply upon the front ends of the metatarsal bones, or ball of the foot, thereby enlarging the joints and increasing the breadth of that part of the foot, and causing corns under the joints. This is a painful state for all who have to walk or stand much in their occupation. Another effect of high heels is to push the foot forward in the boot, bringing a great strain on the toes, crushing them out of their natural position, or causing them to become permanently contracted. The effect of pushing the large toe outward causes a bunion to form, and unnatural pressure is forced on parts of the feet that Nature never intended nor made provision for.

The Toes.

The most important is the great toe. In true health it will be quite straight along the inside of the foot, allowing a little roundness for large joint. To ensure the great toe retaining its natural form, boots the natural shape of the foot should be worn. It is of the utmost importance that parents should pay strict attention to their children's boots. Children's feet develop so quickly that the toes are soon pushing up to the ends of the boots, as parents often insist upon having them fit, as they call it, forgetting how quickly they grow; and of course the great toe, being the stoutest, forces a place for itself, and presses upon the other toes. The great toe is pressed outward and rounded outwardly, and the nail begins to press into the upper of the boot, and a strain is put upon the joint or end of the metatarsal bone. If this mischief be allowed to continue, the toe will gradually be forced further and further out of a straight line, and a partial dislocation of the joint will ensue, and the whole form of the foot will be disarranged. The evils resulting from this are: a large bunion is formed at the joint of the great toe, and ingrowing toe-nails. Bunions have long been considered incurable, but remedies are now being developed to cure these painful and unsightly defects by means of toe-posts and toe-adjusters, the object being to bring the toe back to its natural position.

The second toe appears to accommodate itself more easily to undue pressure than the other toes; it is sometimes pushed upwards between the large and third toes, and sometimes partially below them, not taking as much harm as the others.

The third toe is seriously injured by being pushed, sometimes on the top and sometimes under the other two toes. This is the "hammer-toe" already referred to, generally caused by being first pushed back by short boots, then squeezed between the other toes in narrow-toed boots, corns forming on the end and on the top joints of the toe. In such a case it is advisable to have a surgeon cut the sinews under the toe, splint it straight, and wear boots suitable for the feet.

The fourth toe is protected on both sides, and it tries to accommodate itself by getting on the top or drawing up, but it is still liable to corns.

The little or fifth toe is indeed an unfortunate one. I cannot say whether it is despised or imposed upon because it cannot help itself, but it tries hard to accommodate itself to circumstances. It is sometimes drawn on the top of the foot; in another case quite under and almost out of sight, but not out of mind, for it generally makes its presence known by a corn on the end, or joint, or between it and the fourth toe. Do not put all the blame on the shoemaker, as you generally order your boots "like someone else's!" forgetting that most likely your feet are quite different to theirs.

THE BOTTOM OF THE FOOT.

Proper boots will generally prevent the formation of corns, as they are caused by undue pressure being put upon any part of the foot, but the difference in our constitutions renders one person more liable to corns than another under the same circumstances. A person with a hot, dry hand and foot, which does not perspire much, is predisposed to corns, and the hand becomes hard and horny when much used in work ; while a person having a fleshy, hot, moist hand and foot, does not suffer much from corns, as the perspiration keeps the skin soft. Children do not suffer so much from corns as adults, for their skin is softer.

Looking at the bottom of a well-formed foot we shall see three points, the tripod bearings ; one in the middle of the heel, the second at the base of the little toe, the third under the ball of the great toe. These projections form an irregular triangle ; they take the great weight or pressure that goes to the feet. The three projections often become four, as the high heels push the weight of the body forward into the joints of the toes, while an additional pressure is also made on both sides of the foot by narrow boots. The result of this may be seen by pressing the open hand with the other hand around it, and looking at the palm. At the bottom of the fingers you will see a projection in the middle ; the same thing takes place in the middle forepart of the foot ; but a bad corn forms on this projection as the skin becomes very much stouter and harder on this part, for Nature never provided for pressure there.

The effect of badly-made boots and high heels has already been described. The heel, being less complicated, is less liable to suffer from the effect of bad boots than the other parts of the foot. Of course it does suffer, but in a different way, and not in the same proportion to the other parts. With high heels a false arch may be formed, and the heel contracted under the foot ; or in other cases the same kind of heel projects the bone backwards and causes flat foot.

Many people are able to raise the great toe at an angle with the rest of the foot by working the toe joint ; but I have seen many cases in which this joint seems fixed, and the toe cannot be moved higher than in a line with the rest of the foot, and instead of a projection of the joint being at the side of the foot there is an enlargement on the top of the joint which painfully increases with age. It greatly affects the manner of walking, as in walking a spring is made from the end of the great toes when they are in a more or less raised position, but with stiff joints the spring must be made from the outside of the great toe. If it is not a bad case, and the person is able to spring from the great toe, it still causes great inconvenience and some pain, besides being very destructive to the toes of the boots. In all cases of this kind I make a dip in the boots under the end of the great toe, and advise people to bathe the great toe and joint frequently in warm water, and at every opportunity to work and pull the toe upwards to give it greater freedom. I cannot explain the cause of the stiff joint, knowing that children are born so, but I think it worthy of the attention of surgeons.

CORNS.

The body is covered with two skins, the dermis, or true skin, and the epidermis, or outer skin ; it is the epidermis, or scarf skin, as it is called, which is most concerned in the formation of corns.

Corns are undoubtedly caused by badly-fitting boots or shoes, but this fact must be borne in mind, supply follows demand, and if customers will order tight boots, made in shapes that cannot fit any foot, or only one kind of foot, they must expect to suffer from corns ; for whenever undue and continuous pressure or friction is kept on any part of the foot than on the parts provided by Nature, there must exist a great liability for corns. Nature has provided the tripod bearings with stouter skin, but even there, with much standing or walking, corns will frequently form. Corns are formed by undue pressure, first upon the outer or scarf skin, which is provided by Nature with means of thickening itself for its own protection ; but this very thickening takes up more room, and so increases the pressure upon the inner or true skin. This skin then becomes inflamed, and if not rested and attended to at once, a small particle of matter is formed, the skin again thickening round, a hard corn is at last, firmly established. The soft corn, though much sooner and easier cured, is a source of great annoyance, as the parts become extremely sensitive. These corns form in between the toes, and in addition to the usual causes—heat, pressure, friction—it is commonly brought into a very painful condition by the acrid nature of the secretions between the toes, much aggravated by the neglect of ablution and thoroughly cleaning the surface ; and this applies to all corns, callosities, or hard formations on the feet. The worst cases occur when the toes hug each other so closely, that a ragged, pappy state of the integument is produced, and one toe will probably affect the next one to it by saturating its surface. Hard corns are most common, the most difficult to remove being upon the least fleshy parts of the foot, and therefore nearest the bone. Temporary relief may be obtained by pulling off the boots, placing the feet in a horizontal position, and allowing the feet to cool.

There is a multitude of remedies for the cure of corns advertised and advised. Many are simply made of grease or oil, and give a slight relief. Some are plasters, which often slip off the corn whilst walking, and some are caustic. But many people who have tried these come to me with inflamed feet, and cannot go to business until they have a cloth boot made. I cannot recommend anything better than the simple but constant use of warm water and glycerine or vaseline.

The feet should be bathed in hot water the last thing at night, remaining in the water about three minutes; then the soft pulpy outside of the corns should be scraped with any blunt instrument, taking care to remove as much as possible without causing pain, and rub the corns well with glycerine or vaseline. They will feel much more comfortable the next day, but the same treatment must be persisted in till the corns are entirely extirpated, which will be in about ten or twelve days. If discontinued sooner the corns grow again. When once eradicated the surest method of preventing all further recurrence of them is to wear soft and easy boots and shoes well adapted to the feet, and avoid too much standing or walking, if possible, for the time being.

Toe-nails.

Many people neglect the proper care of toe-nails, and so rbing a deal of trouble and inconvenience upon themselves. It is necessary to keep the nails short, for, if long, the upper part of the shoe presses upon them and gives a feeling that the boots are too short, and sometimes if not attended to, inflammation sets in under the large toe-nail, and pus, or matter, settles there, from which a thickening of the nail may take place which will be painful and unsightly all through life. Another source of great pain and trouble is the grown-in toe-nail; this is caused by the side of the toes squeezing the flesh up so that the nail grows into the flesh, and sometimes a corn forms upon the spot where the nail is growingin, making the pain much greater. To remedy this bathe the foot in hot water, cut the nail as short as possible in the centre, and scrape the top as thin as possible, be exceedingly careful not to cause pain or draw blood, and wear boots broad enough at the toes and straight along the inside of the foot.

Chilblains.

In connection with the comfort of the feet, these tormenting afflictions must not be forgotten, for the youth of both exes are liable to them, and tender childhood does not escape. Chilblains are caused by sudden changes from hot to cold, or cold to hot temperature. The extremities are attacked first; the feet, hands, nose, and ears become swollen, and an itching sensation is felt. Sometimes the chilblains soon disappear, but more often the irritation and swelling increases. It is better to attend to them in their first stage by rubbing the inflamed parts with a stimulating embrocation, now sold by most chemists. A simple remedy is resin ointment. As a preventive of chilblains it is necessary that the feet should be kept warm and dry, for if a person who is liable to chilblains get his feet wet, and then cold, he is almost sure to lay the foundation of fresh chilblains, and, if not checked, the inflammation mounts to a higher degree, small blisters are formed which often burst, causing the flesh to become raw and ulcerated. Sometimes these ulcers are deep and obstinate, and need the care of a doctor.

BOOTS AND SHOES AND THE ADAPTIBILITY TO FEET.

Boots and shoes are worn for the purpose of protection from the injurious influences of cold and wet in winter, the heat and dust of summer, the roughness and hardness of the ground, or the scrub and fences of the country. In early times sandals were worn as a protection from the rough ground, and it has been suggested that people were then free from corns; but I doubt whether this was the case, as the thongs or bands between the toes and at the sides of the feet must have caused them.

There is no doubt that a protection for the feet is necessary, and the question now arises what kind of boot or shoe is wanted to fulfil these requirements. For outdoor walking a sole of medium stoutness is best, and an upper of any kind of soft leather, the substance varying from glove kid to stout grain. A greater variety is introduced into the materials for indoor shoes; the soles are made of light leather, and the uppers of silks, velvet stuffs, cloths, fancy soft leather, etc. The shape, cut, and whole formation of the boot or shoe, should be such as to give the best protection and the greatest freedom to all parts of the foot and leg; but fashion, unfortunately, is so mixed up in this question, as in all other questions of clothing, that all endeavours for the comfort of the feet are stifled.

Though a choice of colour may be made without injury to the foot, fashion is not satisfied until it has interfered with the entire construction of the boot. The tailor, dressmaker, and hatter may conform to fashion, however ridiculous, without inflicting serious injury upon their customers. This is not the case, however, with the shoemaker; he makes his boots the shape of the last given him, often not knowing, or even thinking, about the construction of the foot or leg and its uses. Many bootmakers cannot even measure a foot in the proper manner. Shop assistants in boot shops and general stores often know nothing whatever about the make of boots. The last-maker is in the same position as the shoemaker; he makes the last according to fashion, and the directions given him, which are sometimes right, but more often wrong. I was many years in getting my last-maker to make lasts the shape I required, and then was laughed at for a still longer period. Then wholesale manufacturers adopted the shape under the name ot "The Hygienics," and other such titles, so that now you can get an improved boot, the shape being slightly modified from my original style.

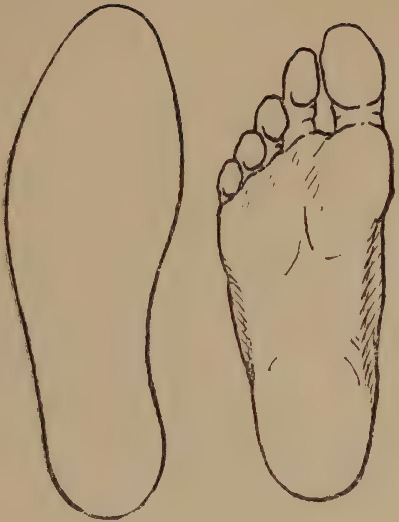
It is difficult to explain what is the best kind of boot, certainly those made according to the formation of the foot of the person who is to wear them ; and as different people have different shaped feet, it is necessary to study the shape of one's feet before ordering the boots. I repeat, infants' shoes should not be made straights, but one for each foot, right and left, being straight along the inside from the waist to the end of the great toe, and rounding on the outsides from the toes to the waist, with broad toes. With infants, broad toes are safe, because in early life the feet are more alike than afterwards, when they begin to develop the characteristics inherited. Broad toes should be worn by children up to the age of fourteen or fifteen, by which time the foot will have attained its growth in length, and developed the various differences as to the formation of toes, arch, etc. Of course it is still liable to change by injury from bad-shaped boots ; but if it has been kept in a good state up to that age, it is less likely to get distorted, as the pain and inconvenience would be much greater and would receive immediate attention.

For convenience we will assume the foot is fairly preserved, and you wish to keep it in a healthy state. First ascertain as to what type it belongs, whether to the broad type, with its large and two next toes about the same length, or the classic, with the two middle toes the longest ; or thirdly, with the great toe the longest ; these latter are the narrowest.

I have shown by illustration that no one shape will suit all feet, and although boots and shoes are manufactured on an average plan, they will not fit generally, though much may be done by a careful selection of the ready-mades. The purchaser should insist upon the boots being straight along the inside from the heel to the toes, low, broad heels, and the toes as broad as the toes of the feet. They should be a wide as the foot, but if they are a little narrower at the tread it will not hurt much, as they should be an inch longer. Never buy straights. A good bootmaker will make the shape required if he has studied the subject, and the customer can leave the matter entirely to him. Be careful that the boots are not too large, or the sole will turn up, pressing the toes further out. If these directions are followed and due regard paid to the carriage of the body, the greater distortions will be prevented. The thinner the material of which the boots are made, the tighter may be the fit, the stouter the more easy they should be.

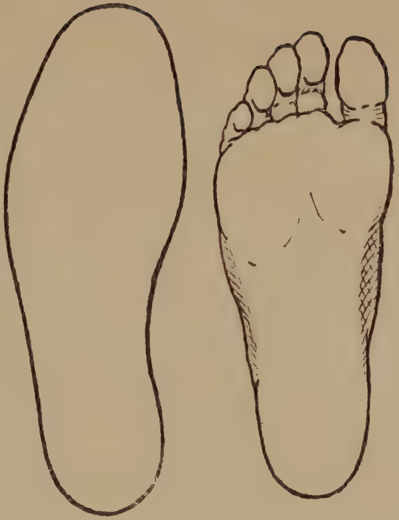
There is no doubt that handsewn bespoke boots and shoes are preferable to ready-made ones, as they are more carefully constructed, more pliable to the feet, stronger and more easily repaired. Next comes the machine-made, and the best machine is valuable only as being able to produce goods

No. 1



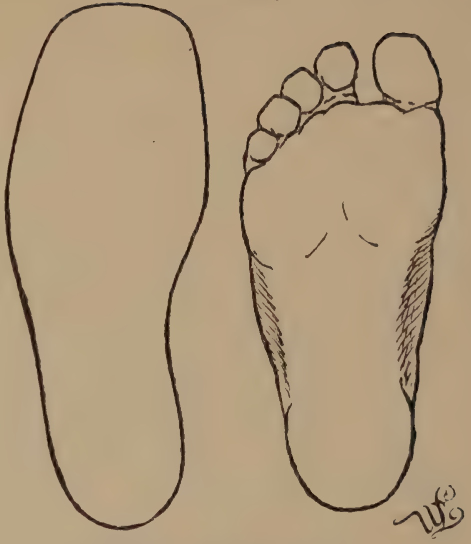
The Narrow Type.
(See Illustration No. 1.)

No. 2



The Grecian or Round Toe Type.
(See Illustration No. 2.)

No. 3



The Broad or Square Toe Type.
(See Illustration No. 3.)

the nearest approach to handsewn, that is, in being pliable, and therefore adapting themselves to the motions of the foot. A rivetted boot, in whatever form, is worse than a wooden bottom or clog. It is rigid, hard, and unyielding, and in whatever shape it is made the foot must adapt itself to it. If it yields or bends at all it is at the waist instead of the toes. The makers ought to make them with stiff waists and raised toes, to rock like clogs, thus adapting themselves better to the motions of the foot while walking ; but as they are cheap they are very much worn, causing an enormous quantity of distorted and crippled feet, especially flat feet.

Fashion has the most power in ruling the shape of boots, and those persons who start the fashion often care little about the results. In Richard II.'s reign the excessively elongated toes were stylish. In Henry VIII.'s reign the extraordinary round toes, approaching to eight inches, were fashionable. This shows that it is not so much the style of the boot as the fact that the eye gets accustomed to a certain shape. In my own experience I have seen various shapes ruling the fashion for a time—first the round narrow toe, mostly made straights ; the duck-billed gent's, made rights and lefts ; the broad French toe shape, made straights or rights and lefts ; then nearly straights, as illustrated by Dr. Meyer, and then passing again from narrow toes to broad.

Many bootmakers, and a large proportion of the public, are seeking better shapes for boots ; but to made a suitable boot on must know something of the anatomy of the foot, and the way to measure, being careful to note the shape. These three classes will be a guide if you bear in mind that they are only three types, and that there are varieties of each type. Many people will like a word of advice about having lasts made to their feet. It is a good thing to be provided with them, but should the feet be distorted, the lasts should be made nearly like the feet, allowing a little room towards the natural shape to enable the foot to improve. It has been stated that the foot has generally attained its full length at about fourteen or fifteen years of age ; but it will begin to elongate and get broader after thirty or thirty-five years of age, caused by the weight of the body and the relaxation of the muscles of the waist or arch, and therefore there must be alterations, or new lasts made. Socks, made of cork or leather, should be worn during the winter, as they help to keep the feet warm and dry ; if cork socks are worn during the hot weather they tend to make the wearer tired and languid.

MALFORMATIONS NOT CAUSED BY BOOTS OR WALKING.

These must be attended to directly they are discovered, and to get the advice of a good surgeon is the wisest course to pursue. There are some means of curing or alleviating all the malformations of the feet and legs. Should the circumstances of the person not permit the attendance of a good surgeon, it is then best to try the hospital, as it is a terrible thing that a person should go through life a cripple, when there are means of relieving or curing his complaint if proper care be taken. Besides the pain and inconvenience, he has also to suffer loss of employment, and is frequently refused a situation because an employer thinks the deformity may interfere with his business.

CONTRACTION OF THE HIP JOINT.

This is generally the result of an abscess, a blow, or a fall, or it may be from birth; for this it is necessary to wear a corked boot, which will enable the wearer to walk nearly level; it should not be exactly level, as it is necessary that the wearer should have a slight exertion to reach the ground to induce the muscles to develop. This exertion must be very slight, or it will injure the spine. The boot must be carefully made with a cork inner sole, the necessary height at the heel and ball; but it should be much thinner at the toe, rounding like the half-rocker of a bassinette, giving easy motion and preventing the boot digging into the ground. I have seen excellent results obtained by rubbing the muscles and sinews of the hip, and the use of gymnastics with leaden sole or weight attached to the foot.

Knock-knees are so well known that they do not require description, but they do require help. They may be cured by correctly made and correctly applied steel supports and straps; but I have seen these supports so badly applied to the boots as to entirely destroy any good effect which they ought to attain. They really ought (fixed outside the legs) to make the wearer turn his toes in; if this is not done, besides losing all good effects, flat feet will be the result. Children, if treated properly when young, may be cured in three or four years.

BOW LEGS.

Cases of bow legs are common, and require careful consideration to be remedied. Sometimes they are inherited; others are caused by rachitis, tight-lacing; and, again, squarely-built persons usually have curved limbs; these may be left to be improved by natural development. The other cases require prompt attention, steel supports should be fixed to the inner side of the legs, causing the toe to turn outwards. The steel must be fixed into the heel of the boot, and one strap fastened round the knee; but the most important strap is round the calf at the centre of the bow, which should always be kept tight enough to support, without impeding development and circulation. With proper adjustment a cure should be effected in two years, but much depends upon the fixing of the steel.

Equinus Phalanges,

Or elevation of the heel, is strictly a surgeon's case, afterwards requiring an experienced shoemaker's assistance. If there be a contraction at the back of the heel or under the foot, an operation should take place while the child is about two years. There are many cases of this malformation which passes unnoticed, and it is sometimes thought an advantage as showing a high-arched instep ; but this develops into a short thick foot, with all the pressure on the forepart or ball, and often causing bad corns. These corns are a source of great pain and inconvenience to people whose business or occupation necessitates their standing or walking the greater part of the day.

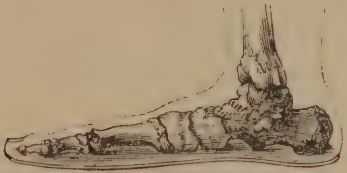
Talipes, or Club Foot,

Is another malformation, in which the heel is more or less drawn up and the foot turned in. If the case be very slight a surgical bootmaker may be able to effect a cure, but it is safer to have a doctor's advice, especially if the child is standing on the side of its foot with the heel raised.

I should not have mentioned these cases, but having so many of them brought to my notice, there often seems a lack of knowledge about the existence of a remedy, or at least a means of immense improvement for all of them. Many people shrink from allowing their children to undergo an operation, often saying, "Oh, the feet will be useless after an operation." In my own experience I have never met with a case in which the operation was not greatly beneficial. I would thus impress upon parents the urgent necessity of attending to these cases while children are young, as it is a terrible thing to allow them to grow into manhood, suffering a deformity which might have been cured. These malformations are often hereditary. A grandparent had equinus phalanges or raised heel, and his grandchild suffered from club feet, although in other respects was a strong healthy child. Two cousins had club feet, and both underwent an operation ; in one case one foot was made perfect and the other nearly so ; in the other there was a decided improvement.

Flat Feet and Weak Ankles.

These arise from various causes. Some are hereditary, some from rachitis, some from much standing, and frequently from an improper way of walking. Whatever its cause it is a great disfigurement, and gives much weariness and pain. Although very common it is not often recognised as flat foot, but called weak or sprained ankle, or rheumatism. The hereditary flat foot and those caused by rachitis are noticed in children, and should be attended to as soon as the child begins to step by himself; it can then be completely cured, as it is a derangement of the bones of the foot and not the ankle. People often neglect to attend to these cases of flat feet, saying, "I can manage to walk;" but it often causes pain in the ankle, round the heel, under the waist, and at the ball of the foot, while it impairs the walking, as flat feet cause a stiff heavy style of walking, frequently on the heels, with a forward stooping of the body, quite devoid of the elastic step of youth. These remarks apply to the case of flat feet found among children, either caused by rachitis or are hereditary. Some of these are soon cured, while others take a much longer time; bad cases may require care until the child is sixteen years of age. Above fifteen years of age flat feet may be attributed, not so much to the former cause and debility, but to the slovenly and mistaken way of turning the toes out while walking, and this may be cured by a person making a practice of placing his feet perfectly straight forward while walking.



FLAT FOOT WITHOUT ARCH SUPPORT.

To cure cases of flat feet I depend entirely upon my patent arch supports, with directions to carry the toes straight. I attach so much importance to the straight carriage of the feet that I should not expect a good result without it, because when the toes are turned out the whole mechanism of the feet is disarranged, and the weight of the body, pressing upon the feet whilst in that position, forces the bones of the instep down, and the ligiments then give way. But with the arched supports under the feet and the toes placed straight forwards, the bones are restored to their natural position. If a very bad case, in which the foot is perfectly flat on the ground, with ankle projecting, a steel up the outside of the leg, with a strap to draw the ankle outward, and an arch support under the foot is required; this raises the waist or arch of the foot, supports the joints of the cuneiform and navicular bones, and raises and supports in front the metatarsal bones, and in the centre the tarsal and inner projection of the cuboid; and those, being raised, carry forward the tibia and fibula, thus restoring the foot to its natural form, and the muscles soon adapt themselves to their altered position; but it is only in very rare and extreme cases that a steel for the side of the leg is required.

Wearing the arch supports will cause pain for about ten days or a fortnight, but this will not be so bad as the pain in the foot without them; it will not be necessary to rest from walking or standing while wearing them, as a lady shop assistant had to stand upon them eight hours the first day she wore them; and in another case a policeman had his eight hours' duty to do while wearing them for the first time. Both these were such bad cases that they would have had to resign their vocations had they not used the supports. I find that walking and standing on the supports hasten the good results obtained from them, and in cases where the instep is stiff it regains its flexibility; in fact, after five or six years' use they have always proved effective. Previously I used pads under the waist of the boot and stiff sides of leather or bone; but as these often failed, I invented these improved supports, which are made of the best steel, and covered with padded leather. They do not yield to the pressure caused by the weight of the body as india-rubber, cork, or leather will do. I introduced various contrivances, mostly with the parts rivetted together, but found difficulties in the rivets corroding and the parts falling away. I have now a plate made with one firm piece of the best steel, the exact shape of the natural arch of the foot. This is covered with leather, and forms a sock which can be placed in any boot, as they are made in all sizes. The spring is a modified form of the plate, and may either be made as a sock, or inserted between the soles of the boots when being made.

Hoping that I have made myself sufficiently plain and simple in pointing out many of the evils in boots and shoes, I should like to add that much depends upon our personal care of our feet, and that cleanliness is necessary for health and comfort. The remedies suggested are simple and safe, but it is always wise to have a doctor's advice if the case be at all severe. It certainly is remarkable that such beautiful and useful members should be distorted, neglected, or abused.

Printed at the Office of the "Boot and Shoe Trades Journal."
St. Bride's-avenue, Fleet-st., E.C.

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